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FORM PTO-1300 (REV. 11-2000)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTORNEY'S DOCKET NUMBER 1175/63852
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371			U.S. APPLICATION NO. (If known, see 37 CFR 2.5) <b>09/720446</b>
INTERNATIONAL APPLICATION NO. PCT/DK99/00353	INTERNATIONAL FILING DATE June 23, 1999	PRIORITY DATE CLAIMED June 29, 1998	
TITLE OF INVENTION PACKED TAPES AS WELL AS METHODS AND AN ASSEMBLY FOR PACKING SAID TAPES			
APPLICANT(S) FOR DO/EO/US Poul Henrik Ahm			
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:			
<p>1. <input checked="" type="checkbox"/> This is a <b>FIRST</b> submission of items concerning a filing under 35 U.S.C. 371.</p> <p>2. <input type="checkbox"/> This is a <b>SECOND</b> or <b>SUBSEQUENT</b> submission of items concerning a filing under 35 U.S.C. 371.</p> <p>3. <input type="checkbox"/> This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below.</p> <p>4. <input checked="" type="checkbox"/> The US has been elected by the expiration of 19 months from the priority date (Article 31).</p> <p>5. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371(c)(2))</p> <p style="margin-left: 20px;">a. <input checked="" type="checkbox"/> is attached hereto (required only if not communicated by the International Bureau).</p> <p style="margin-left: 20px;">b. <input type="checkbox"/> has been communicated by the International Bureau.</p> <p style="margin-left: 20px;">c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US).</p> <p>6. <input type="checkbox"/> An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).</p> <p style="margin-left: 20px;">a. <input type="checkbox"/> is attached hereto.</p> <p style="margin-left: 20px;">b. <input type="checkbox"/> has been previously submitted under 35 U.S.C. 154(d)(4).</p> <p>7. <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))</p> <p style="margin-left: 20px;">a. <input checked="" type="checkbox"/> are attached hereto (required only if not communicated by the International Bureau).</p> <p style="margin-left: 20px;">b. <input type="checkbox"/> have been communicated by the International Bureau.</p> <p style="margin-left: 20px;">c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired.</p> <p style="margin-left: 20px;">d. <input type="checkbox"/> have not been made and will not be made.</p> <p>*8. <input type="checkbox"/> An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371 (c)(3)).</p> <p>9. <input checked="" type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).</p> <p>10. <input type="checkbox"/> An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).</p> <p>Items 11 to 20 below concern document(s) or information included:</p> <p>11. <input type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98.</p> <p>12. <input checked="" type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.</p> <p>13. <input checked="" type="checkbox"/> A <b>FIRST</b> preliminary amendment.</p> <p>14. <input type="checkbox"/> A <b>SECOND</b> or <b>SUBSEQUENT</b> preliminary amendment.</p> <p>15. <input type="checkbox"/> A substitute specification.</p> <p>16. <input type="checkbox"/> A change of power of attorney and/or address letter.</p> <p>17. <input type="checkbox"/> A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.</p> <p>18. <input type="checkbox"/> A second copy of the published international application under 35 U.S.C. 154(d)(4).</p> <p>19. <input type="checkbox"/> A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).</p> <p>20. <input checked="" type="checkbox"/> Other items or information: Please see the attached page 3.</p>			

U.S. APPLICATION NO. 09/720446

INTERNATIONAL APPLICATION NO.  
PCT/DK99/00353ATTORNEYS DOCKET NUMBER  
1175/6385221. ☒ The following fees are submitted:**BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)):**Neither international preliminary examination fee (37 CFR 1.482)  
nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO  
and International Search Report not prepared by the EPO or JPO. .... \$1000.00International preliminary examination fee (37 CFR 1.482) not paid to  
USPTO but International Search Report prepared by the EPO or JPO ..... \$860.00International preliminary examination fee (37 CFR 1.482) not paid to USPTO  
but international search fee (37 CFR 1.445(a)(2)) paid to USPTO ..... \$710.00International preliminary examination fee (37 CFR 1.482) paid to USPTO  
but all claims did not satisfy provisions of PCT Article 33(1)-(4) ..... \$690.00International preliminary examination fee (37 CFR 1.482) paid to USPTO  
and all claims satisfied provisions of PCT Article 33(1)-(4) ..... \$100.00**ENTER APPROPRIATE BASIC FEE AMOUNT =****CALCULATIONS PTO USE ONLY**

\$ 860.00

Surcharge of \$130.00 for furnishing the oath or declaration later than ☐ 20 ☐ 30  
months from the earliest claimed priority date (37 CFR 1.492(e)).

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	\$
Total claims	12 - 20 =		x \$18.00	\$ 0.00
Independent claims	1 - 3 =		x \$80.00	\$ 0.00
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ \$270.00	\$

**TOTAL OF ABOVE CALCULATIONS =**☒ Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above  
are reduced by 1/2. + \$ 430.00**SUBTOTAL =**Processing fee of \$130.00 for furnishing the English translation later than ☐ 20 ☐ 30  
months from the earliest claimed priority date (37 CFR 1.492(f)).**TOTAL NATIONAL FEE =**Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be  
accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property + \$ 40.00**TOTAL FEES ENCLOSED =**Amount to be  
refunded: \$

charged: \$

a. ☐ A check in the amount of \$ \_\_\_\_\_ to cover the above fees is enclosed.b. ☐ Please charge my Deposit Account No. \_\_\_\_\_ in the amount of \$ \_\_\_\_\_ to cover the above fees.  
A duplicate copy of this sheet is enclosed.c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any  
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information should not be included on this form. Provide credit card information and authorization on PTO-2038.**NOTE:** Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR  
1.137 (a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

COOPER & DUNHAM LLP  
1185 Avenue of the Americas  
New York, New York 10036

SIGNATURE

Donald S. Dowden

NAME

No. 20,701

REGISTRATION NUMBER

PATENT  
1175/63852

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant : Poul Henrik Ahm  
Serial No. : Not yet assigned  
Filed : Herewith  
For : PACKED TAPES AS WELL AS METHODS AND AN  
ASSEMBLY FOR PACKING SAID TAPES  
International  
Application No. : PCT/DK99/00353  
Priority Date  
Claimed : June 29, 1998  
Group : Unknown  
Examiner : Unknown

1185 Avenue of the Americas  
New York, New York 10036  
(212) 278-0400  
December 22, 2000

**PRELIMINARY AMENDMENT**

Assistant Commissioner for Patents  
BOX PCT  
Washington, D.C. 20231

Sir:

Before examining the application identified above, please amend it as follows:

**IN THE CLAIMS**

Please cancel claims 1-12 without prejudice or disclaimer and substitute  
therefor the following new claims 13-24:

--13. (New) A packed tape (1) comprising at least one folded tape (2) and a package

(3, 40) preferably made of plastic sheet, characterised in that the tape (2) is zigzag folded into at least one oblong stack in such a manner that some (2a) of the bendings of the tape flush with the ends of the stack whereas the remaining bendings (2b) are positioned at varying distances therefrom.--

--14. (New) A packed tape as claimed in claim 13, characterised in that the packed tape comprises several stacks arranged in parallel, and that the package is a box, for instance made of cardboard, and that separating sheets are optionally inserted between the stacks.--

--15. (New) A method of producing a packed, flexible tape comprising a folded tape (2) and a package (3, 40), characterised in that the tape (2) is advanced continuously optionally from a tape supply (35) to a packing location where said tape (2) is zigzag folded by virtue of its weight and by means of side lowering means (12, 12a, 12') into at least one oblong stack on the bottom (16) of the package (3) formed as a bag or a box in such a manner that some (2a) of the bendings of the tape flush with the ends of the stack and that the remaining bendings (2b) are positioned at varying distances therefrom, and that after the filling of the package (3) the layers of the stack are compressed and the package is closed.--

--16. (New) A method as claimed in claim 15, characterised in that the used side lowering means are formed by substantially vertical, endless, circulating lowering belts (12), the downward courses (12a) of said lowering belts opposing one another and being arranged at the ends of the stack, whereby the zigzagged tape (2) forms bendings (2a) as said

downward courses (12a) are tangent to the outermost tape bendings (2a).--

--17. (New) A method as claimed in claim 15, characterised in that the zigzag folding of the tape is carried out by means of at least one tape lowering means (25) pivotally suspended (30) above the packing location, whereby each tape lowering means comprises two co-acting endless circulating belts (26, 27) passing the tape downwards therebetween, and whereby the zigzag folding is controlled by the oscillating movement of the tape lowering means (25) in combination with the tape laying speed.--

--18. (New) A method as claimed in claim 15, where the tape is a germinating tape of for instance two layers of paper, characterised in that the germinating tape is of a width corresponding to maximum 90% of the distance between the walls of the package (3).--

--19. (New) A method as claimed in claim 15, characterised in that the zigzag folding and the compressing of the tape (2) to be packed is carried out in a compartment defined by the lowering belts (12) and some side guides (15), such as plates or bars, and towards the bottom (16) by a package, such as a bag, placed on an optionally stepwise, laterally displaceable support, whereby after the compressing of the tape the package can be rolled up and closed about the stack at the same time as the compartment is removed.--

--20. (New) A method as claimed in claim 15, characterised in that the bag (3) used is made of shrink film, and that the package, such as the bag, is subjected to a shrinking after its

closing, for instance a hot air shrinking.--

--21. (New) A method as claimed in claim 15, characterised in that the packing is carried out under vacuum.--

--22. (New) An assembly used in carrying out the method as claimed in claim 15, characterised in that it comprises an upwardly and downwardly open compartment, the opposing ends of which are provided with side lowering means in form of endless circulating belts (12), where the belt courses (12a) facing the interior of the compartment move downwards, said assembly further comprising a frame (22) surrounding the compartment and retaining and optionally distending a package (3, 40) about said compartment, as well as a supporting means (18) for the package (3, 40), said supporting means being accommodated below the compartment and the frame and being separately adjustable in height and optionally stepwise, laterally displaceable.--

--23. (New) An assembly used in carrying out the method as claimed in claim 15 characterised in that it comprises at least one tape lowering means (25), which is preferably level adjustable and movable in the vertical direction during operation, and which is pivotally arranged about a point (30) of the upper end of said tape lowering means, and which per se comprises two abutting endless circulating belts (26, 27), where the opposing belt courses (26a, 27a) run downwards, said assembly further comprising an electronic control unit (34) for controlling the reciprocating movement of the tape lowering means (25) and the

adjustment in height and optionally the stepwise, lateral displacement of a supporting means  
(18).--

--24. (New) An assembly as claimed in claim 22, and where the bag (3) is made of shrink film, characterised in that it comprises a compressing means (24) for the stack and a film shrinking equipment, preferably of the hot air or heat radiation type.--

**REMARKS**

Claims 1 to 12 have been canceled without prejudice or disclaimer since the invention is adequately protected by new claims 13-24. Claims 13-24 correspond to the claims as amended in the international application and have been further amended to reduce the filing fee. Favorable action is respectfully requested.

Respectfully submitted,  
COOPER & DUNHAM LLP



Donald S. Dowden  
Reg. No. 20,701

DSD:jcr

Title: Packed tapes as well as methods and an assembly for packing said tapes.

Technical Field.

The invention relates to a packed tape comprising a folded tape and a package preferably made of plastic film. The invention relates also to a method of producing a  
5 packed flexible tape comprising a folded tape and a package.

Background Art

US-PS No. 5,211,621 discloses an assembly for zigzag folding a continuous tape, where the zigzag folding is carried out in a substantially horizontal plane and the bendings preferably oppose one another. The section of the assembly housing the  
10 zigzagged portions is provided with side slides controlling the amount of advanced zigzagged tape portions. The zigzag folding is established by the tape being carried through the gap between two juxtaposed rollers, said rollers reciprocating substantially perpendicular to the advancing direction of the tape. Such a zigzag folding of a tape is not completely satisfactory when the tape is a seed tape because the position-  
15 ing of the bendings opposite one another is then encumbered with draw-backs. When the tape is a seed tape it is in connection with the placing and later germination of the tape in a germinating box as well as during the following bedding out by means of machines for bedding out seed or germinating tapes very important that said tape is placed with the bendings uniformly distributed across the width of the germinating  
20 box. Such a positioning of the bendings is very important for obtaining a uniform filling of the germinating box with tapes as said bendings take up more room in the box than the remaining portions of the tape, and consequently it is very important for uniform room conditions for the tape during the germination, said germination causing a swelling in the germinating portions. Finally it is very important for an  
25 unproblematic pulling out of the tape from the germinating box through the dispensing opening thereof.



Brief Description of the Invention

The object of the invention is to provide a packed tape, especially a seed tape of the above type, which is easily pulled out through a dispensing opening in the germinating box on the bedding machine in question.

- 5      The object of the invention is also to provide a method of producing the above packed tape, said method being far more simple and inexpensive than hitherto known.

10      The packed tape according to the invention is characterised in that the tape is zigzag folded into an oblong stack in such a manner that some of the bendings of the tape flush with the ends of the stack whereas the remaining bendings are positioned at varying distances therefrom. Once the packed tape has been placed in the germinating box and one end of the package has been opened, the resulting tape can be unproblematically pulled out through the dispensing opening of the germinating box, i.e. without said tape wedging in the dispensing opening or being damaged when passing said opening.

15      According to the invention the packed tape may comprise several stacks arranged in parallel, and the package may be a box optionally made of cardboard, whereby separating sheets may optionally be arranged between the stacks. In this manner it is possible to obtain a particularly long tape when the stacks arranged in parallel in the box have been placed in the germinating box, said particularly long tape being very advantageous when it is to be bedded out by means of a bedding machine.

- 20      The invention relates also to a method of producing a packed flexible tape comprising a folded tape and a package. This method is characterised in that the tape is advanced continuously optionally from a tape supply to a packing location where said tape is zigzag folded by virtue of its weight and by means of side lowering means into at least one oblong stack at the bottom of the package formed as a bag or a box in such

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a manner that some of the bendings of the tape flush with the ends of the stack and that the remaining bendings are positioned at varying distances therefrom, and that after the filling of the package the layers of the stack are compressed and the package is closed. As a result a simple packing of the tape in the desired shape is obtained, where a desired varying positioning of the bendings is obtained, and where the compressing of the stack and closing of the package have the effect that said package takes up minimum room during the following storage and/or transport.

According to the invention the used side lowering means may be formed by substantially vertical, endless, circulating lowering belts, the downward courses of said lowering belts opposing one another and being arranged at the ends of the stack, whereby the zigzagged tape forms bendings as said downward courses are tangent to the outermost tape bendings. In this manner it is ensured that the above flushing tape bendings are caught by the side lowering means as said bendings are formed at the uppermost layer of the stack and then carried downwards in such a manner that room is quickly provided for a fresh layer of tape on top of the stack. As a result an increase of the packing speed is obtained.

According to a particularly advantageous embodiment of the method according to the invention, the zigzag folding of the tape is carried out by means of at least one tape lowering means pivotally suspended above the packing location, whereby each tape lowering means comprises two co-acting endless circulating belts passing the tape downwards therebetween, and whereby the zigzag folding is controlled by the oscillating movement of the tape lowering means in combination with the tape layering speed. In this manner an additional increase of the packing speed and an accurately controlled positioning of the individual bendings of the tape are obtained.

When the tape is a germinating tape for instance comprising two layers of paper, this

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tape may according to the invention be of a width corresponding to maximum 90% of the distance between the walls of the package. As a result the germinating tape positions itself correctly during the zigzag folding in the bag and does not slide aside or turn over.

Moreover the zigzag folding and the compressing of the tape to be packed may according to the invention be carried out in a compartment defined by the lowering belts and some side guides, such as plates or bars, and towards the bottom by a package, such as a bag, placed on an optionally stepwise, laterally displaceable support, whereby after the compressing the package can be rolled up and closed about the stack at the same time as the compartment is removed. As a result a particularly reliable and fast zigzag folding of the tape is obtained in the package, and a faster production of the packed tape than hitherto known is also obtained.

Moreover the bag used may according to the invention be made of shrink film, whereby the package, such as the bag, can be subjected to a shrinking after its closing, for instance a hot air shrinking. In this manner the packed tape presents a compact unit in which the various layers of the tape are fixed relative to one another, the film closely abutting the zigzagged tape.

Furthermore, the packing may according to the invention be carried out under vacuum, whereby it is ensured that the package material abuts the tape particularly closely.

The invention relates furthermore to an assembly used in carrying out the method according to the invention, and this assembly is characterised in that it comprises an upwardly and downwardly open compartment, the opposing ends of which are provided with side lowering means in form of endless circulating belts, where the belt courses facing the interior of the compartment move downwards, said assembly further comprising a frame surrounding the compartment and retaining and optionally dis-

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tending a package about said compartment, as well as a supporting means for the package, said supporting means being accommodated below the compartment and the frame and being separately adjustable in height and optionally stepwise, laterally displaceable. This assembly turned out to be particularly advantageous for carrying out the method according to the invention.

Finally the invention relates to an assembly used in carrying out the method according to the invention, said assembly being characterised in that it comprises at least one tape lowering means, which is preferably level adjustable and movable in the vertical direction during operation, and which is pivotally arranged about a point of the upper end of said tape lowering means, and which per se comprises two abutting endless circulating belts, where the opposing belt courses run downwards, said assembly further comprising an electronic control unit for controlling the reciprocating movement of the tape lowering means and the adjustment in height and optionally the stepwise, lateral displacement of a supporting means. This assembly turned out to be particularly advantageous in carrying out the method according to the invention, because it can control in a particularly accurate manner the length of each "zig" and "zag" of the zigzagged tape and the adjustment in height of the supporting means.

When the assembly is to be used for bags of shrink film, the assembly may according to the invention comprise a compressing means for the stack and a film shrinking equipment, preferably of the hot air or heat radiation type. As a result, the completely packed tape can be available as a rather compact package, where the film closely abuts the tape.

In addition to a plastic film as packaging material, it is also possible to use laminated plastic, which is optionally thin and corrugated. It is also possible to use a cardboard box as package.

#### Brief Description of the Drawings

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The invention is explained in detail below with reference to the accompanying drawing, in which

Fig. 1 is a horizontal sectional view through a packed tape according to the invention with a greatly exaggerated distance between the tape layers, and where the zigzagged tape and surrounding package clearly appear,

Fig. 2 is a diagrammatic view of the steps of the method according to the invention,

Fig. 3 is a diagrammatic view of an assembly used in carrying out the method according to the invention,

Fig. 4 is a diagrammatic view of a second assembly used in carrying out the method according to the invention,

Fig. 5 is a perspective view of a package in form of a box.

#### Best Mode for Carrying Out the Invention

Fig. 1 is a diagrammatic view of a packed tape 1 comprising a folded tape 2 and a package 3 preferably made of plastic sheet. As illustrated, the tape 2 is folded in zigzag way in a stack. Some 2a of the bendings of the tape 2 are in contact with the package 3 at the ends of the stack, and the remaining bendings 2b are positioned at varying distances from said package.

Fig. 2 is a diagrammatic view of the individual steps of a method of producing a packed flexible tape comprising a folded tape and a package. As shown at 6, a continuous advancing of the tape to a packing location is initially carried out. As shown at 7, the tape is placed zigzag by way of its own weight and by means of side lowering means as a stack on the bottom of the package formed as a bag. As shown at 8,

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the stack is then compressed, and as shown at 9 the bag is then closed. As shown at 10, the bag can be subjected to a shrinking provided it is made of shrink film, such as a hot air shrinking.

By the method, the side lowering means used can be formed by substantially vertical, 5 endless, circulating lowering belts, the downward courses of said lowering belts opposing one another and being arranged at the ends of the stack, where the zigzagged tape forms bendings as said downward courses are tangent to the outermost tape bendings. The above is explained below with reference to Fig. 4.

When the tape is a germinating tape, for instance made of two layers of paper, it can 10 be of a width of 15 to 20 mm or corresponding to maximum 80% to 90% of the distance between the walls of the bag. The dimension in question of the tape is the dimension perpendicular to the paper of Fig. 1. The zigzag folding and the compressing of the zigzagged tape can be carried out in the compartment shown in Figs. 3 and 4. This compartment is defined by side lowering means 12, 12' in form of substan- 15 tially vertical, endless, circulating side lowering belts 12a. The course of the two endless belts 12 running downwards is indicated at 12a. As shown, the zigzag folding is also carried out by means of some side guides, such as plates 15, associated with the compartment. Fig. 3 only shows one of these side guides. These side guides can, however, also be bars. The zigzag folding is carried out on a bottom 16 of a bag 3 20 placed on a supporting means 18. After the above compressing of the tape, which is performed in vertical direction, the bag 3 can be rolled up and closed about the stack by means of means not shown and simultaneously with the compartment 12, 15 being removed from said stack.

As mentioned above, the bag 3 can optionally be subjected to a shrinking, for in- 25 stance a hot air shrinking, in such a manner that it closely abuts the stack. The said packing can also be performed under vacuum.

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Below the assembly shown in Fig. 3 is described in greater detail. The above side lowering means 12 and the side guides 15 form together an upwardly and downwardly open compartment, which can be lifted and lowered relative to the supporting means 18 of the assembly. The assembly comprises also a frame 22 arranged outside the compartment. This frame is used for distending the bag 3 about the compartment. The supporting means 18 is separately adjustable in height, which does not, however, appear from the Figure.

The assembly can also comprise a compressing means 24 rendering it possible to compress the tape 2. In addition, a film shrinking equipment not shown can be provided in the assembly, said equipment preferably being of the hot air or heat radiation type.

Fig. 4 illustrates a second assembly used in carrying out the method according to the invention. This assembly is provided with a compartment with side lowering means 12' and a supporting means 18, on which the bottom of a bag 3 rests. Only the lowermost portion of the bag is shown in Fig. 4. The assembly comprises also a tape lowering means 25 pivotally arranged about a point 30 on the upper end of the tape lowering means 25. The tape lowering means 25 comprises abutting endless circulating belts 26 and 27, where the opposing belt courses 26a and 27a run downwards. In addition, a driving means 32 is provided, which reciprocates the tape lowering means 26 in an oscillation about the point 30 as indicated by means of the double arrow A. The control of the oscillating movement of the tape lowering means 25 is carried out by means of an electronic control unit 34. The tape 2 can be advanced to the compartment at a varying speed, and the oscillating movement of the tape lowering means 25 is controlled with variable oscillations in such a manner that the individual zigs and zags in the stack are provided with the desired size. The tape 2 is advanced from a tape supply 35 by means of advancing rollers 36 both in Fig. 3 and in Fig. 4. The tape lowering means 25 is level adjustable and movable in the vertical direction during the operation.

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The assembly of Fig. 4 is also provided with a frame for retaining and distending the bag 3, but this frame is not shown.

5 Above reference has been made to a bag 3. Nothing prevents, however, said package from being for instance a cardboard box 40, cf. Fig. 5, and then the frame 22 supports the cardboard box. Then care is taken that the supporting means 18 can be displaced aside stepwise, for instance perpendicular to the plane of the paper in such a manner that many juxtaposed stacks can be placed in the box provided said box is sufficiently large. For instance seven juxtaposed tape lowering means, viz. one per tape, can optionally be provided in Fig. 4 instead of one tape lowering means 30. In this case, the package 41 is filled seven times as fast as usually, but the tapes in the seven stacks are not joined into one long coherent tape. 10 Vertical separating sheets 42 of for instance cardboard or plastics can be inserted between the stacks of tape. These separating sheets can in the assemblies shown in Fig. 3 and Fig. 4 be lowered by means of particular sheet gripping members not shown. The separating sheets can optionally be built into the box 40. The box 40 can be considered a multi-package-box. 15

The invention may be modified in many ways without thereby deviating from the scope of the invention as defined in the appended claims.

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### Claims

1. A packed tape (1) comprising at least one folded tape (2) and a package (3, 40) preferably made of plastic sheet, c h a r a c t e r i s e d in that the tape (2) is zigzag folded into at least one oblong stack in such a manner that some (2a) of the bendings  
5 of the tape flush with the ends of the stack whereas the remaining bendings (2b) are positioned at varying distances therefrom.

2. A packed tape as claimed in claim 1, c h a r a c t e r i s e d in that the packed tape comprises several stacks arranged in parallel, and that the package is a box, for instance made of cardboard, and that separating sheets are optionally inserted be-  
10 tween the stacks.

3. A method of producing a packed, flexible tape comprising a folded tape (2) and a package (3, 40), c h a r a c t e r i s e d in that the tape (2) is advanced continuously optionally from a tape supply (35) to a packing location where said tape (2) is zigzag folded by virtue of its weight and by means of side lowering means (12, 12a, 12') into at least one oblong stack on the bottom (16) of the package (3) formed as  
15 a bag or a box in such a manner that some (2a) of the bendings of the tape flush with the ends of the stack and that the remaining bendings (2b) are positioned at varying distances therefrom, and that after the filling of the package (3) the layers of the stack are compressed and the package is closed.

20 4. A method as claimed in claim 3, c h a r a c t e r i s e d in that the used side lowering means are formed by substantially vertical, endless, circulating lowering belts (12), the downward courses (12a) of said lowering belts opposing one another and being arranged at the ends of the stack, whereby the zigzagged tape (2) forms bendings (2a) as said downward courses (12a) are tangent to the outermost tape  
25 bendings (2a).

5. A method as claimed in claim 3, characterised in that the zigzag folding of the tape is carried out by means of at least one tape lowering means (25) pivotally suspended (30) above the packing location, whereby each tape lowering means comprises two co-acting endless circulating belts (26, 27) passing the tape downwards therebetween, and whereby the zigzag folding is controlled by the oscillating movement of the tape lowering means (25) in combination with the tape laying speed.

6. A method as claimed in claim 3, 4 or 5, where the tape is a germinating tape of for instance two layers of paper, characterised in that the germinating tape is of a width corresponding to maximum 90% of the distance between the walls of the package (3).

7. A method as claimed in one or more of the claims 3 to 6, characterised in that the zigzag folding and the compressing of the tape (2) to be packed is carried out in a compartment defined by the lowering belts (12) and some side guides (15), such as plates or bars, and towards the bottom (16) by a package, such as a bag, placed on an optionally stepwise, laterally displaceable support, whereby after the compressing of the tape the package can be rolled up and closed about the stack at the same time as the compartment is removed.

8. A method as claimed in one or more of the claims 3 to 7, characterised in that the bag (3) used is made of shrink film, and that the package, such as the bag, is subjected to a shrinking after its closing, for instance a hot air shrinking.

9. A method as claimed in one or more of the claims 3 to 8, characterised in that the packing is carried out under vacuum.

10. An assembly used in carrying out the method as claimed in one or more of the claims 3 to 9, characterised in that it comprises an upwardly and

AMENDED SHEET

downwardly open compartment, the opposing ends of which are provided with side lowering means in form of endless circulating belts (12), where the belt courses (12a) facing the interior of the compartment move downwards, said assembly further comprising a frame (22) surrounding the compartment and retaining and optionally distending a package (3, 40) about said compartment, as well as a supporting means (18) for the package (3, 40), said supporting means being accommodated below the compartment and the frame and being separately adjustable in height and optionally stepwise, laterally displaceable.

11. An assembly used in carrying out the method as claimed in one or more of the claims 3 to 9 characterised in that it comprises at least one tape lowering means (25), which is preferably level adjustable and movable in the vertical direction during operation, and which is pivotally arranged about a point (30) of the upper end of said tape lowering means, and which per se comprises two abutting endless circulating belts (26, 27), where the opposing belt courses (26a, 27a) run downwards, said assembly further comprising an electronic control unit (34) for controlling the reciprocating movement of the tape lowering means (25) and the adjustment in height and optionally the stepwise, lateral displacement of a supporting means (18).

12. An assembly as claimed in claim 10 or 11, and where the bag (3) is made of shrink film, characterised in that it comprises a compressing means (24) for the stack and a film shrinking equipment, preferably of the hot air or heat radiation type.

AMENDED SHEET

Title: Packed tapes as well as methods and an assembly for packing said tapes.

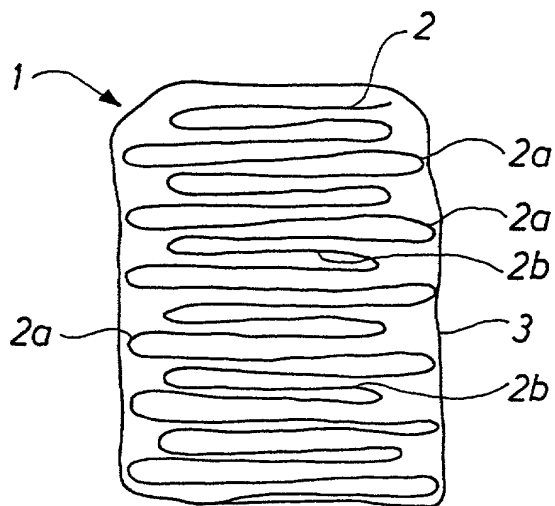
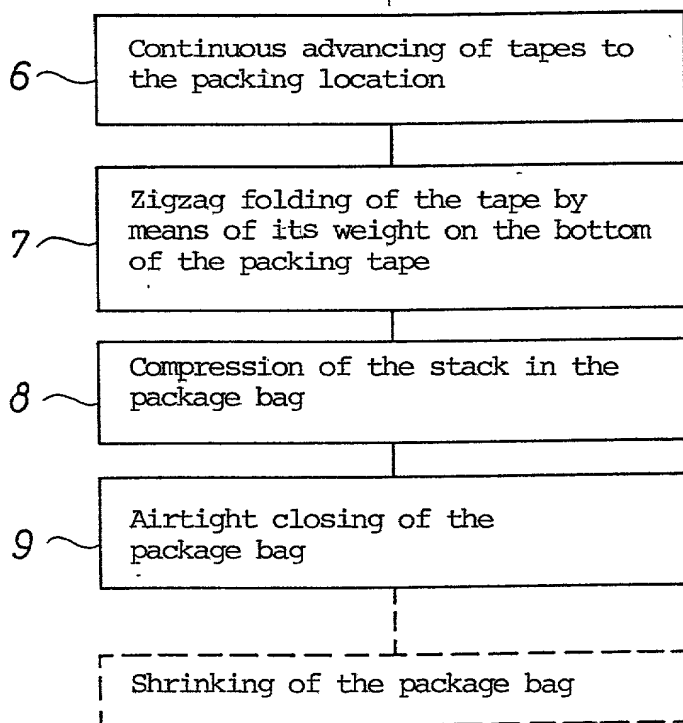
Abstract.

A packed tape (1) comprises a folded tape (2) and a package (3) preferably made of plastic film. The tape (2) is zigzag folded into an oblong stack in such a manner that  
5 some (2a) of the bendings of the tape flush with the ends of the stack whereas the remaining bendings (2b) are positioned at varying distances therefrom. The resulting tape, especially a seed tape, is suited for being pulled out through a dispensing opening in a germinating box on a bedding machine.

Fig. 1

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**Fig. 1****Fig. 2**

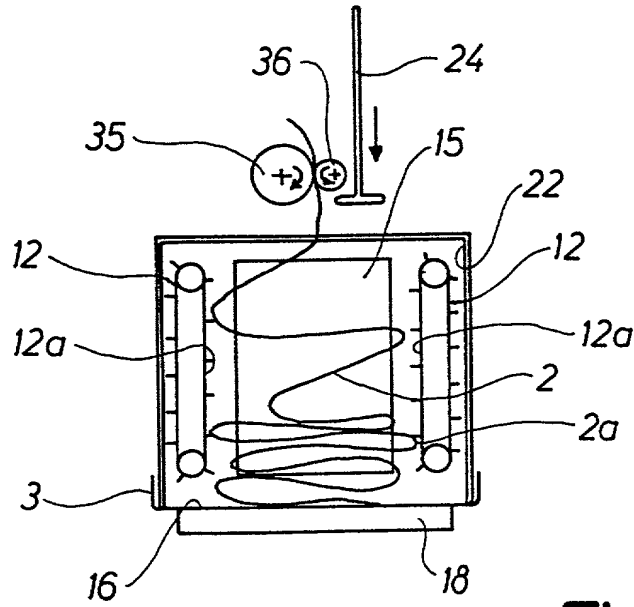


Fig. 3

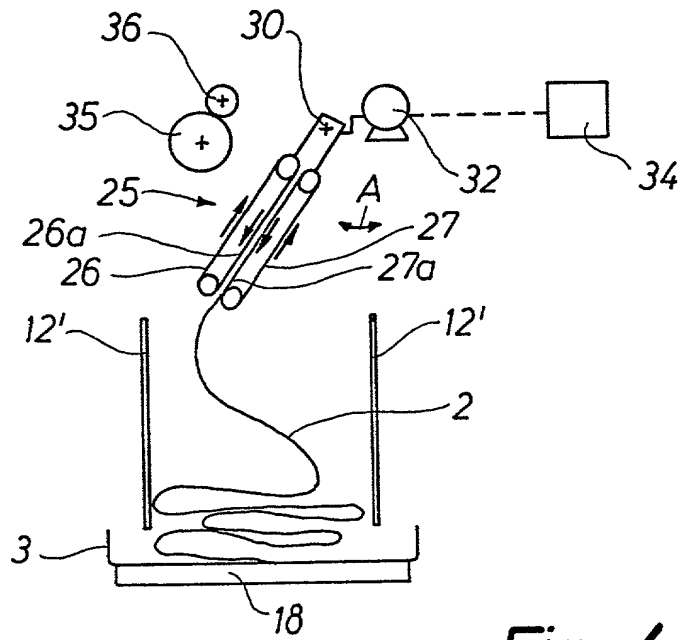


Fig. 4

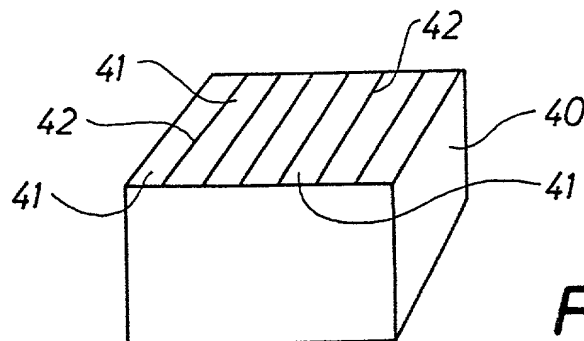


Fig. 5

## DECLARATION AND POWER OF ATTORNEY

As a below-named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Packed tapes as well as methods and an assembly for  
packing said tapes

the specification of which  
(check one)

\_\_\_\_\_ is attached hereto  
X was filed on 23 June 1999 as  
Application Serial No. PCT/DK99/00353  
and was amended on 9 June 2000  
(if applicable)

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information of which I am aware which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, Section 1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)			Priority Claimed	
<u>Number</u>	<u>Country</u>	<u>Filing Date</u>	<u>Yes</u>	<u>No</u>
PA 1998 00833	Denmark	29 June 1998	X	

## Declaration and Power of Attorney

I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States Application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, Section 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

<u>Application Serial No.</u>	<u>Filing Date</u>	<u>Status</u>
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And I hereby appoint:

⑦ Thomas F. Moran, Reg. No. 16,579; Donald S. Dowden, Reg. No. 20,701; Ivan S. Kavrukov Reg. No. 25,161; Christopher C. Dunham Reg. No. 22,031; Jay H. Maioli, Reg. No. 27,213; William E. Pelton, Reg. No. 25,702; Robert D. Katz, Reg. No. 30,141.

and each of them, all c/o Cooper & Dunham LLP of 1185 Avenue of the Americas, New York, NY 10036 (Tel: 212-278-0400), Attorneys, each with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to receive the patent, to transact all business in the Patent and Trademark Office connected therewith and to file any International Applications which are based thereon under the provisions of the Patent Cooperation Treaty.

Please address all communications, and direct all telephone calls, regarding this application to

<u>Donald S. Dowden</u>	Reg. No. <u>20,701</u>
<u>Cooper &amp; Dunham LLP</u>	
<u>1185 Avenue of the Americas</u>	
<u>New York, N.Y. 10036</u>	
<u>Tel. (212) 278-0400</u>	

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

1-00 Full name of sole or first joint inventor AHM, Poul Henrik  
Inventor's signature Poul AHM

Citizenship Denmark Date of Signature 7 December 2000

Residence Edf. Mar Bella, Atico A, Calle San Pedro, 43  
E-03590 Altea (Alicante), Spain ESX

Post Office Address Edf. Mar Bella, Atico A, Calle San Pedro, 43  
E-03590 Altea (Alicante), Spain